

**International Tsunami Information Center Activities – 2003**  
**Laura Kong, Director**

During 2003, ITIC was involved in the following activities of interest the NTHMP:

**Tsunami Newsletter**

The ITIC Tsunami Newsletter was and will published bi-monthly (February, April, June, August, October, December) in 2003. Each issue is distributed as hard copy and electronically ([http://www.prh.noaa.gov/itic/library/pubs/newsletters/nl\\_html/nl\\_2003.html](http://www.prh.noaa.gov/itic/library/pubs/newsletters/nl_html/nl_2003.html)). In 2003, the Newsletter will switch to publishing every three months in order to allow more time to be devoted to other activities. The Newsletter covers topics related to the Tsunami Warning System in the Pacific (TWSP), including recent events greater than M6.5, warning center operations of the PTWC and other national warning centers, ITSU (International Coordination Group for the TWSP) business, meeting summaries, and other topics of interest to ITSU Member States, tsunami warning system operators, researchers and other technical professionals, and government officials.

**ITIC Web Site (<http://www.prh.noaa.gov/itic/>)**

The site has been continuously improved and upgraded with the hiring of a part-time Webmaster in the Fall, 2002. The ITIC web site presents information of potential interest to the general public, in contrast to the ITSU web site (<http://ioc.unesco.org/itsu/>), which includes ITSU-related technical documents and Member State coordination activities. Some ITSU tsunami awareness and educational documents are available from both sites. Recent ITC web site enhancements include:

1. Placement of the ITIC Tsunami Library card catalogue online as a searchable database in August, 2003 (<http://140.90.201.175:591/ldb.htm>). The Library collection is extensive, containing over 5,600 records. The Library collects tsunami and earthquake catalogs, tsunami event information, conference proceedings, maps, reports, government documents, journal articles, and graduate theses. The documents focus on research, risk assessment and mitigation, tsunami travel time and source studies, and measurement of tsunamis.
2. Recent Data section providing access to tsunami observations and summaries for recent events ([http://www.prh.noaa.gov/itic/tsunami\\_events/recent\\_data/recent\\_data.html](http://www.prh.noaa.gov/itic/tsunami_events/recent_data/recent_data.html)). The site is meant to serve as a central clearinghouse for access to, and posting of, up-to-date information on recent events. Data include earthquake source characteristics, mareograms, post-tsunami surveys and other observations of the tsunami arrival and damage, and model simulations. We are in the process of implementing this site, and thus far, have mirrored information currently found at the PMEL site (overseen by Frank Gonzalez).
3. Media Page ([http://www.prh.noaa.gov/itic/tsunami\\_events/media/media.html](http://www.prh.noaa.gov/itic/tsunami_events/media/media.html)) containing information and graphics of interest to media, with information specific to Hawaii added. The intent of this Page is to provide easy access to the tsunami messages, as well as downloadable background information and access to other URLs to assist the media in reporting on a tsunami event. The site was developed in cooperation with NOAA Public Affairs Officer Delores Clark.

#### 4. Foreign Language Page

([http://www.prh.noaa.gov/itic/foreign\\_language/foreign\\_language.html](http://www.prh.noaa.gov/itic/foreign_language/foreign_language.html)), currently Spanish and French. This section will contain non-English documents, and provide the user with a means of viewing the ITIC web pages in Spanish and French. This section is being implemented because the ITIC web site in Chile, which formerly provided access to the non-English documents, will close at the end of 2003.

#### **Global Tsunami Database (GTDB) (Status Summary attached)**

This project, endorsed by ITSU-XIX (Meeting Abstract attached) and funded by the NWS/PR, will merge the two existing databases of the NOAA/NGDC and the Novosibirsk Tsunami Laboratory, Russia (HTDB/Pacific) to create a single, merged, high quality tsunami database. Central to this project is 2-month working visit by the HTDB/Pacific Project Leader Dr. V. Gusiakov to the ITIC and NGDC for collaborative work. The GTDB should be ready by early 2005. The GTDB will be accessible through the web as a forms-based search and as an interactive GIS application, and the data exportable in a number of different formats. The maintenance of the GTDB will be the responsibility of the NGDC, NTL, and the ITIC, with the ITIC serving as the clearinghouse for the receipt of data on future tsunami events.

In a second project funded by the NWS/PR and the UNESCO/IOC, a tsunami travel time computation and display module will be added to the standalone Expert HTDB application. Continued support of a standalone application that utilizes the GTDB is recognized as important for scientists while on travel and for those customers with only limited Internet bandwidth. The end of 2004 will complete this upgrade.

#### **Tsunami: Reduction of Impacts through three Key Actions (TROIKA)**

The proposal presented by Eddie Bernard at ITSU-XVII (2001), and summarized briefly by Frank Gonzalez at ITSU-XIX, resulted in the approval of Recommendation ITSU-XIX.1 (attached). The TROIKA programme, modeled after the NTHMP with the three pillars of hazard assessment, mitigation, and warning guidance, is proposed to serve as a comprehensive tsunami hazard reduction program for tsunamigenic areas of the Pacific. An Intersessional Working Group was established to fully develop the capacity requirements, identify cost estimates to achieve the full capacity level, and develop an implementation plan. The Group is composed of Eddie Bernard (United States), Rodrigo. H. Nunez (Chile), Neil Head (Australia) and chaired by Laura Kong (ITIC Director). The Group will present preliminary results at the 2005 ITSU Officers meeting, and a final report at ITSU-XX. The Recommendation included some travel support for members to meet.

#### **Tsunami Awareness and Education**

The ITIC participated in the activities organized as part of Tsunami Awareness month in Hawaii in April. These included the conduct of a Tsunami Exercise in response to a Local Tsunami Warning, a Media Briefing, Radio Talk Show, Kids Science educational television show, an Ocean Awareness Festival and Earth Day, and development of a Media Page on the ITIC web site.

The ITIC annually conducts its ITSU Tsunami Training Programme. Each year, two participants are funded to travel to Hawaii to learn about tsunamis and tsunami warning systems. Visits are made to the PTWC, State and Local Civil Defense Agencies, and with researchers to discuss the international and local tsunami warning systems and their integration with emergency response agencies, and to learn about the seismic and water level instrumentation and communications equipment used to monitor seismicity and water levels and to disseminate warning messages. As a part of this programme and other training visits to countries, the ITIC has developed a series of PowerPoint presentations on tsunamis, tsunami warning systems, and mitigation and risk assessment programs. These presentations will be further developed during 2004, translated into different languages, and be available for use as a standard set of tsunami training materials.

### **Tsunami Warning Systems**

The ITIC Director made seven presentations on the TWSP and/or the Hawaii Regional Tsunami Warning System in 2003, with five of these presented at international meetings of tsunami scientists or on early warning systems. These include:

- Puerto Rico Tsunami Warning System Protocol Meeting, Puerto Rico - January
- Hemispheric Consultation on Early Warning Systems, Guatemala - June
- NESDES Data Users Meeting, NGDC Boulder, CO - June
- IUGG Tsunami Symposium, Japan – July
- Krakatau Tsunami Seminar/Workshop, Indonesia – August
- Tsunamis in South Pacific, New Zealand – September
- Second International Conference on Early Warning Systems, Germany - October

At the Tsunamis in the South Pacific workshop, a roundtable discussions on operational responses to a M8.7 earthquake off northern Chile was convened and moderated by ITIC and Gaye Downes of GNS New Zealand. Panel participants included Directors from the PTWC, Chile, Japan, French Polynesia Warning Center, Emergency Managers from New Zealand, the USA, and Australia, and tsunami advisors (New Zealand, USA) and researchers (USA). The session was viewed as a valuable exercise, and will be transcribed and presentations included in Technical Document for distribution

### **Post-Disaster Technical Clearinghouse (Disaster Intelligence web server)**

The State of Hawaii, through its Hawaii State Earthquake Advisory Committee (HSEAC), Tsunami Technical Review Committee), in partnership with the Pacific Disaster Center (PDC) and the ITIC, continues to move toward the creation of a Multi-Hazard Technical Clearinghouse for disaster intelligence gathering after a natural hazard or other man-made disaster (e.g., terrorism). The initiative seeks to implement a secure, electronic GIS-based, clearinghouse on the web for the archiving of, and access and display of, data collected after a disaster.

Infrastructure, critical facilities, and other data layers important to emergency responders will be preloaded, and displayable along with post-event damage and loss estimation models or other model simulations, for efficient and widespread access. The project is spearheaded by the ITIC Director, acting as a Hawaii Tsunami Advisor and the HSEAC Chair. Currently, a prototype enhanced web site that permits the posting of multiple types of documents (file, graphics or photo, URL) at different security levels has been demonstrated by the PDC. The model was presented at the IUGG in July, 2003.

## **International Co-ordination Group for the Tsunami Warning System in the Pacific**

Nineteenth Session

Wellington, New Zealand, 29 September – 2 October 2003

### **Abstract**

The Nineteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific was held in Wellington, New Zealand, from 29 September to 3 October 2003 under the Chairmanship of Dr. François Schindelé. It was attended by 34 participants from fifteen ICG/ITSU Member States, two organizations and two observers from other countries. The Session reviewed progress made during the inter-sessional period 2001-2003 and drafted its work plan for the period 2004-2005. This work plan will focus on (i) continued support for the International Tsunami Information Centre (ITIC); (ii) support for the development of the Global Tsunami Data Base (GTDB) and the new Integrated Tsunami Data Base (ITDB) consisting of the WinHTDB graphic shell and a Tsunami Travel Time (TTT) module; (iii) finalization of the Tsunami Information Kit; (iv) support for the newly established Working Group on a Comprehensive Tsunami Hazard Reduction Programme (TROIKA); (v) support the newly established Working Group on the Central American Pacific Coast Tsunami Warning System (CAPC-TWS); and (vi) support the newly established Working Group on the Tsunami Warning System in the Southwest Pacific and Indian Ocean (SWP-TWS). The Group requested a budget of US\$ 141,500 for the biennium 2004-2005 to accomplish the work plan. The Group further decided to (i) study possibilities for cooperation with JCOMM; (ii) increase the duration of its ITSU Training Programme held in Hawaii (ITP-Hawaii) to three weeks, and establish an international component (ITP-International) for in-country assistance to Member States; (iii) establish a “Pool of Experts” to assist Member States with expert missions; (iv) accept the “Tsunami Hazard Zone” and “Tsunami Evacuation Route” signs and submit these to ISO; (v) recommend formal collaborative links with the Circum-Pacific Council; (vi) reduce the frequency of the Tsunami Newsletter to 4 issues per year; (vii) redefine the terms of reference of the IOC-ITSU and ITIC web sites; (viii) recommend close(r) collaboration with GLOSS, ISDR and with CEPREDENAC. The Group further revised the ITSU Master Plan Conclusions adding focus on the acquisition of data in real-time and optimizing the network to ensure accurate warning issuance and minimization of false warnings. The Group requested to urgently proceed with the Review of the ITSU Programme in 2004. The Group re-elected Dr. François Schindelé and Dr. Charles McCreery as Chair and Vice-Chair of ITSU respectively. The Group welcomed Mr. Emilio Lorca as the new ITIC Associate Director, replacing Cmdr. Rodrigo Nuñez.

## **Tsunami Newsletter, October 2003**

### **Global Tsunami Database (GTDB) Project**

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Earlier this year, the ITIC (Honolulu), the WDC/NGDC/NOAA (Boulder) and the NTL/ICMMG (Novosibirsk) collaborated on the development of a plan to compile a unified and comprehensive Global Tsunami Database (GTDB) by merging the two existing tsunami databases currently maintained separately by the WDC/NGDC and the NTL/ICMMG. The first draft of the proposal was developed in June of 2003 during the preparation of the first working meeting on the GTDB Project held on July 8, 2003 in Sapporo, Japan prior to the IUGG Tsunami Symposium (ITIC Newsletter Vol. XXXV, No. 4, page 9). A general plan of action was discussed at this meeting, including the need for a new database format and a working visit by V. Gusiakov (NTL/ICMMG) to the WDC/NGDC in February - March 2004 to merge the databases. The second meeting was held in Wellington, New Zealand just before the beginning of the International Tsunami Workshop and the XIXth ICG/ITSU Session. This meeting was attended by P. Dunbar (WDC/NGDC), V. Gusiakov (NTL/ICMMG), C. McCreery (PTWC Director), K. Satake (IUGG/TC Chair), N. Nishide (JMA, Japan), N. Puspito (ITB, Indonesia), and P. Wood (IGNS Ltd., New Zealand). The new database format was presented, which includes additional fields for run-up references and numbers of casualties and injuries. After intensive discussion, it was agreed that some of the format details will be resolved during V. Gusiakov's working visit to WDC/NGDC. The need and procedure for obtaining input from the HTDB Regional Coordinators was also discussed. It was also agreed that there is a need to convene a Regional Coordinators meeting in late 2004 or early 2005 to discuss the new procedures for future maintenance and improvement of the GTDB.

The detailed proposal on the GTDB Project was presented to the ITSU-XIX (under Agenda Item 7.3), and received positive support from the Member States. The resulting recommendation (ITSU-XIX.3 Recommendation) encourages the project participants (ITIC, WDC/NGDC, and NTL/ICMMG) to implement the GTDB Project in 2003-2005, with financial support to be provided jointly by the U. S. National Weather Service / Pacific Region and the IOC. The official copy of the database will be housed and maintained at the WDC/NGDC using the Oracle RDBMS software; from here, the data can be accessed via Web-based HTML forms and ArcIMS interactive maps, as well as exported in different formats specified by the ITIC for the use of the tsunami warning centers and other potential users. The offline, standalone application (WinHTDB graphic shell) will continue to be supported, and updated by adding a new software calculation for Tsunami Travel Times (TTT). Support for this application is deemed essential because some users may not have easy access to the Internet, as well as have a need to access to the historical data in an "offline" mode. Upon completion of the first phase of the project in late 2004, the WDC/NGDC will provide 100 copies of a CD-ROM containing the database, graphic shell, and TTT software to the IOC Secretariat for distribution to the Member States.

## **Recommendation ITSU-XIX.1**

### **WORKING GROUP ON A COMPREHENSIVE TSUNAMI HAZARD REDUCTION PROGRAM**

The International Co-ordination Group for the Tsunami Warning System in the Pacific,

**Recognizing the value of** the proposal submitted by the USA during IOC/ITSU-XVIII entitled '*Tsunami Reduction of Impacts through three Key Actions*' (TROIKA), authored by Dr. Eddie Bernard of NOAA's Pacific Marine Environmental Laboratory;

**Noting** the continued success of the U.S. National Tsunami Hazard Mitigation Programme (NTHMP);

**Further recognizing** that the Group enthusiastically adopted TROIKA as a model for comprehensive tsunami hazard reduction programs in tsunamigenic areas of the Pacific;

**Decided to establish an inter-sessional working group** to prepare a pilot implementation programme for the Pacific with the following terms of reference:

- (i) To identify elements of the existing capabilities in all three components described in the TROIKA proposal and listed below.
  - (a) **Hazard Assessment**-Generating local and distant tsunami inundation maps for coastal communities using internationally accepted numerical model methodology. Estimates of coastal areas susceptible to tsunami flooding will be available from a network of modelers and data managers who will be sharing community modeling tools via the Internet.
  - (b) **Mitigation**-Developing response plans for emergency managers, universally accepted tsunami information signs in accordance with local plans/procedures, and maintaining a tsunami education programme for disaster management personnel, local residents and school systems.
  - (c) **Warning Guidance**-Developing and deploying a network of early warning tsunami detection instruments in seismically active coastal areas of the Pacific Ocean to complement the global network of real-time sea level networks and broadband seismometers for the international tsunami warning system and to supplement regional tsunami warning centers.
- (ii) To fully develop the capacity requirements in each component;
- (iii) To identify cost estimates to achieve the full capacity level in each component;
- (iv) To develop an implementation plan;
- (v) To present the Group's results to the 2005 ITSU Officers meeting.
- (vi) To incorporate feedback from the ITSU Officers meeting and submit the Group's final report to ITSU-XX.
- (vii) To liaise with the UN International Strategy for Disaster Reduction (ISDR) regarding tsunami hazard reduction.

**Recommends** that the Group will be composed of Eddie Bernard (United States), Rodrigo. H. Nunez (Chile), Neil Head (Australia) and Chaired by the Director of ITIC.

**Recommends further** that each ICG/ITSU Member State reports to the Group Chairman on its ongoing efforts related to each of the three TROIKA components, not later than 13 February 2004, to assist the Group in its efforts.

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#### Financial implications

- Travel costs of the Chile Group member to attend a Group meeting in the USA in 2004 (US\$3,000),
- Travel costs of the USA Group member to travel to Hawaii to participate in the January 2005 ITSU Officers' meeting (US\$2,500)
- Travel costs for the USA Group member to participate in the ITSU-XX meeting (US\$3,000).
- Total US\$8,500: US\$5,500 in 2004 and US\$3,000 in 2005.